SEQUENCE LISTING

<110> BIOGEN, INC.
      Pepinsky, Blake
      Runkel, Laura
      Brickelmaier, Margot
      Whitty, Adrian
      Hochman, Paula

<120> Polymer Conjugates of Interferon Beta-1a
   and Uses

<130> A065PCT

<140> PCT/US99/24201
<141> 1999-10-15

<150> 60/104,572
<151> 1998-10-16

<150> 60/120,161
<151> 1999-02-16

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ttgaatggga ggcttgaata ctgcctcaag gacaggatga actttgacat ccctgaggag
180
attaagcagc tgcagcagtt ccagaaggag gacgccgcat tgaccatcta tgagatgctc
240
cagaacatct ttgctatttt cagacaagat tcatctagca ctggctggaa tgagactatt
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gttgagaacc tcctggctaa tgtctatcat cagataaacc atctgaagac agtcctggaa
360
gaaaaactgg agaagaagat ttcaccagg ggaaaactca tgagcagtct gcacctgaaa
420
agatattatg ggaggattct gcattacctg aaggccaagg agtacagtca ctgtgcctgg
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accatagtca gagtggaaat cctaaggaac ttttacttca ttaacagact tacaggttac

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			20				25					30		
Gln	Cys	Gln	Lys	Leu	Leu	Trp	Gln	Leu	Asn	Gly	Arg	Leu	Glu	Tyr	Cys
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Leu	Lys	Asp	Arg	Met	Asn	Phe	Asp	Ile	Pro	Glu	Glu	Ile	Lys	Gln	Leu
	50				55					60			
Gln	Gln	Phe	Gln	Lys	Glu	Asp	Ala	Ala	Leu	Thr	Ile	Tyr	Glu	Met	Leu
65					70				75				80
Gln	Asn	Ile	Phe	Ala	Ile	Phe	Arg	Gln	Asp	Ser	Ser	Ser	Thr	Gly	Trp
				85				90				95	
Asn	Glu	Thr	Ile	Val	Glu	Asn	Leu	Leu	Ala	Asn	Val	Tyr	His	Gln	Ile
			100				105				110		
Asn	His	Leu	Lys	Thr	Val	Leu	Glu	Glu	Lys	Leu	Glu	Lys	Glu	Asp	Phe
		115				120				125			
Thr	Arg	Gly	Lys	Leu	Met	Ser	Ser	Leu	His	Leu	Lys	Arg	Tyr	Tyr	Gly
	130				135				140			
Arg	Ile	Leu	His	Tyr	Leu	Lys	Ala	Lys	Glu	Tyr	Ser	His	Cys	Ala	Trp
145				150				155				160
Thr	Ile	Val	Arg	Val	Glu	Ile	Leu	Arg	Asn	Phe	Tyr	Phe	Ile	Asn	Arg
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atctagcact ggctggaa
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atctagcact ggctggaa
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<210> 16
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agacagttct ag
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<210> 17
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ctgcagttct ag
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<210> 19
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<212> DNA
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<210> 21
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<212> DNA
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<211> 87
<212> DNA
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ggagtacgct gcatgtgcct ggacgat
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<212> DNA
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<210> 24
<211> 166
<212> PRT
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Lys Asp Arg Met Asn Phe Asp Ile Pro Glu Glu Ile Lys Gln Leu Gln
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Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr Glu Met Leu Gln
        50                      55                      60
Asn Ile Phe Ala Ile Phe Arg Gln Asp Ser Ser Ser Thr Gly Trp Asn
65                      70                      75                      80
Glu Thr Ile Val Glu Asn Leu Leu Ala Asn Val Tyr His Gln Ile Asn
                85                      90                      95
His Leu Lys Thr Val Leu Glu Glu Lys Leu Glu Lys Glu Asp Phe Thr
                100                     105                     110
Arg Gly Ala Leu Met Ser Ser Leu His Leu Lys Arg Tyr Tyr Gly Arg
            115                     120                     125
Ile Leu His Tyr Leu Lys Ala Lys Glu Tyr Ser His Cys Ala Trp Thr
        130                     135                     140
Ile Val Arg Val Glu Ile Leu Arg Asn Phe Tyr Arg Ile Asn Arg Leu
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Thr Gly Tyr Leu Arg Asn
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<211> 166
<212> PRT
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<400> 25

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            20                      25                      30
Lys Asp Arg Met Asn Phe Asp Ile Pro Glu Glu Ile Lys Gln Leu Gln
        35                      40                      45
Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr Glu Met Leu Ala
        50                      55                      60
Asn Ile Ala Ser Ile Phe Arg Gln Asp Ser Ser Ser Thr Gly Trp Asn
65                      70                      75                      80
Glu Thr Ile Val Glu Asn Leu Leu Ala Asn Val Tyr His Gln Ile Asn
                85                      90                      95
His Leu Lys Thr Val Leu Glu Glu Lys Leu Glu Lys Glu Ala Ala Thr
                100                     105                     110
Ala Gly Ala Ala Met Ser Ala Leu His Leu Lys Arg Tyr Tyr Gly Arg
            115                     120                     125
Ile Leu His Tyr Leu Lys Ala Lys Glu Tyr Ser His Cys Ala Trp Thr
        130                     135                     140
Ile Val Arg Val Glu Ile Leu Arg Asn Phe Tyr Arg Ile Asn Arg Leu
145                     150                     155                     160
Thr Gly Tyr Leu Arg Asn
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<210> 26
<211> 166

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<212> PRT
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Lys Asp Arg Met Asn Phe Asp Ile Pro Glu Glu Ile Lys Gln Leu Gln
            35                  40                  45
Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr Glu Met Leu Gln
        50                  55                  60
Asn Ile Phe Ala Ile Phe Ala Ala Ala Ser Ser Ser Thr Gly Trp Asn
65                  70                  75                  80
Glu Thr Ile Val Glu Asn Leu Leu Ala Asn Val Tyr His Gln Ile Asn
                85                  90                  95
His Leu Lys Thr Val Leu Glu Glu Lys Leu Glu Lys Glu Asp Phe Thr
            100                 105                 110
Arg Gly Ala Leu Met Ser Ser Leu His Leu Lys Arg Tyr Tyr Gly Ala
            115                 120                 125
Ile Ala Ala Tyr Leu Ala Ala Lys Glu Tyr Ser His Cys Ala Trp Thr
            130                 135                 140
Ile Val Arg Val Glu Ile Leu Arg Asn Phe Tyr Arg Ile Asn Arg Leu
145                 150                 155                 160
Thr Gly Tyr Leu Arg Asn
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<210> 27
<211> 166
<212> PRT
<213> human

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            20                  25                  30
Ala Asp Arg Met Asn Phe Asp Ile Pro Glu Glu Ile Lys Gln Leu Gln
            35                  40                  45
Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr Glu Met Leu Gln
        50                  55                  60
Asn Ile Phe Ala Ile Phe Arg Gln Asp Ser Ser Ser Thr Gly Trp Asn
65                  70                  75                  80
Ala Ser Ile Val Ala Ala Leu Leu Ser Asn Val Tyr His Gln Ile Asn
                85                  90                  95
His Leu Lys Thr Val Leu Glu Glu Lys Leu Glu Lys Glu Asp Phe Thr
            100                 105                 110
Arg Gly Ala Leu Met Ser Ser Leu His Leu Lys Arg Tyr Tyr Gly Arg
            115                 120                 125
Ile Leu His Tyr Leu Lys Ala Ala Ala Tyr Ser His Cys Ala Trp Thr
            130                 135                 140
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Ile Val Arg Val Glu Ile Leu Arg Asn Phe Tyr Arg Ile Asn Arg Leu
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Thr Gly Tyr Leu Arg Asn
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<212> PRT
<213> human

<400> 28
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                20              25                  30
Lys Asp Arg Ala Ala Phe Ala Ile Pro Ala Glu Ile Lys Gln Leu Gln
                35              40                  45
Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr Glu Met Leu Gln
            50              55              60
Asn Ile Phe Ala Ile Phe Arg Gln Asp Ser Ser Ser Thr Gly Trp Asn
65                  70              75                  80
Glu Thr Ile Val Glu Asn Leu Leu Ala Asn Val Ala His Gln Ile Ala
                85              90                  95
His Leu Ala Ala Val Leu Glu Glu Lys Leu Glu Lys Glu Asp Phe Thr
                100             105                 110
Arg Gly Ala Leu Met Ser Ser Leu His Leu Lys Arg Tyr Tyr Gly Arg
                115             120                 125
Ile Leu His Tyr Leu Lys Ala Lys Glu Tyr Ala Ala Cys Ala Trp Thr
                130             135                 140
Ile Val Arg Val Glu Ile Leu Arg Asn Phe Tyr Arg Ile Asn Arg Leu
145                 150                 155                 160
Thr Gly Tyr Leu Arg Asn
                165
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Cys Gln Lys Leu Leu Trp Gln Leu Asn Gly Arg Leu Glu Tyr Cys Leu
                20              25                  30
Lys Asp Arg Met Asn Phe Asp Ile Pro Glu Glu Ile Ala Ala Ala Ala
                35              40                  45
Ala Phe Ala Ala Ala Asp Ala Ala Leu Thr Ile Tyr Glu Met Leu Gln
            50              55              60
Asn Ile Phe Ala Ile Phe Arg Gln Asp Ser Ser Ser Thr Gly Trp Asn
65                  70              75                  80
Glu Thr Ile Val Glu Asn Leu Leu Ala Asn Val Ala Tyr His Gln Ala
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                        85                  90                  95
     Asn His Ala Lys Thr Ala Leu Ala Ala Lys Leu Ala Ala Ala Asp Phe
                   100             105             110
     Thr Arg Gly Ala Leu Met Ser Ser Leu His Leu Lys Arg Tyr Tyr Gly
                   115             120             125
     Arg Ile Leu His Tyr Leu Lys Ala Lys Glu Tyr Ser His Cys Ala Trp
                   130             135             140
     Thr Ile Val Arg Ala Glu Ile Leu Ala Asn Phe Ala Arg Ile Ala Arg
     145                 150             155                 160
     Leu Thr Gly Tyr Leu Arg Asn
                   165
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